

### **REMARKS**

Applicant thanks Examiner for the detailed remarks and analysis. Claims 1, 3-6 and 14-26 are pending, claims 2, 8 and 10-13 have been cancelled, and claims 27-29 added.

Claim 26 was rejected as introducing new matter with the added claim limitation "said valve neck includes a hollow tube". Applicant disagrees; this limitation is properly supported in the description and drawings as filed. The specification includes the description that the valve neck 20 includes a "tubular portion 54". (Specification, paragraph 23). The definition of tubular is a hollow usually cylindrical body. (Please see attached definition). Further, the drawings illustrate that the valve neck 20 is hollow in the several views (Figures 1, 2, 4, and 5A). Accordingly, the specification includes proper support for the hollow limitation, and this rejection should be withdrawn.

Claims 1-9, 14-20, 25 were rejected as being anticipated by Welge (US 2,753,147). Claim 1 has been amended to require a valve neck comprising a hollow tube through which an actuation link extends. Amended claim 14 requires a linear element movable in a direction transverse to the axis of rotation. Welge does not include a valve neck through which an actuation link extends. Welge discloses an actuator supported on a plurality of cylindrical spacers (51), none of which comprise a tube through which an actuation link extends. Further, Welge does not disclose an actuator moving a linearly element transverse to an axis of rotation. Accordingly, claims 1 and 14 include limitation not disclosed or suggested by Welge and Applicant requests withdrawal of this rejection.

Claim 15 depends from claim 14 and requires that a valve neck disposed about an axis of rotation supports and spaces the electric actuator a distance from the exhaust pipe. Welge does not disclose a valve neck disposed about an axis of rotation. Instead, Welge discloses a plurality of cylindrical spacers, none of which are disposed about an axis of rotation. Accordingly, this rejection should be withdrawn.

Claims 21, and 22 were as being obvious over the combination of Welge in view of Stark (US 4,373,330). Claims 21 and 22 depend on an allowable base claim and are therefore also in allowable form.

Claim 23, 24, and 26 were rejected as being obvious over Welge and official notice by the Examiner. Claims 23, 24 require the electric actuator to include a first pull coil and a second hold coil. Welge does not suggest a first and second coil. Further, it is not well known in the art that an electric actuator includes a first pull coil and a second hold coil. An electric actuator typically

includes only a single coil. Further, the use of an electric actuator including a first pull coil and a second hold coil to move an exhaust valve is not well known. Official notice of an actuator including a first pull coil and a second hold coil for use in with an exhaust valve is not proper. Applicant respectfully traverses Examiner's assertion of official notice and requests documentary evidence supporting this rejection. As official notice of an actuator having a first pull coil and a second hold coil is improper, Applicant requests withdrawal of this rejection. Further, claims 23 and 24 depend from allowable base claims and are therefore also allowable.

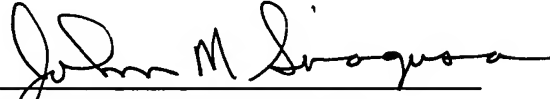
Claim 26 includes the limitation of a valve neck having a hollow portion. Examiner states that Jacque (RD 385031) discloses the limitations of claim 15. However, Jacque fails to disclose the required valve neck including a hollow portion. Claim 15 requires that the valve neck be disposed about an axis of rotation. Jacque does not disclose a valve neck disposed about an axis of rotation. Instead, Jacque discloses a guide tube (24) that is disposed perpendicular to the axis of rotation (Please see Figure of Jacque). Further, in Jacque, guide tube (24) does not support an electric motor. Instead, Jacque a grommet (28) is placed on an end of the guide tube (24). Further, Examiner state that a valve neck having a hollow portion is merely a matter of design choice. Applicant traverses this rejection as the valve neck provides unique heat shielding features that are not mere changes to an element shape, and requests that Examiner provide evidence supporting this assertion or withdraw the rejection. Further, claim 26 depends from an allowable base claim and is therefore also allowable. For these reasons, the rejection to claim 26 should be withdrawn.

Applicant has included new claims 27-29. Claim 27 requires an electric actuator including a linear element movable linearly transverse to an axis about which a valve plate rotates and a valve neck supporting the electric actuator a distance from the exhaust pipe that comprises a hollow tube through which an actuator link extends. Claim 28 requires that the valve neck define an air space surrounding the actuator link for insulating the electric actuator from heat generated by the exhaust pipe. Claim 29 requires that the valve neck is centered about the axis. The prior art does not disclose or suggest a linear actuator with a linear element that moves transverse to rotation of a valve plate or a hollow actuator tube supporting the electric actuator. Accordingly, claims 27-29 are in allowable form.

Applicant believes that the present application is in condition for allowance, and a Notice to that effect is earnestly solicited. Applicant believes that no additional fees are necessary, however,

the Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Respectfully submitted,

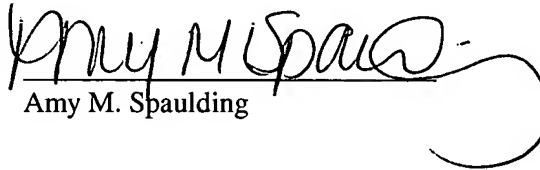


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Dated: April 1, 2005

**CERTIFICATE OF MAILING**

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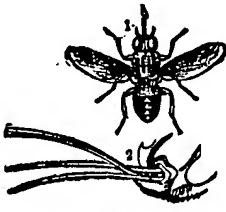


Amy M. Spaulding

## tsar

**tsar**, *n.* a czar.  
**tsar-dom**, *n.* a czardom.  
**tsarévitch**, *n.* a czarevitch.  
**tsarévna**, *n.* a czarevna.  
**tsarina**, *n.* a czarina.  
**tsarism**, *n.* czarism.  
**tsarist**, *a.* and *n.* czarist.  
**tsarizá**, *n.* a czarina.  
**tscheffkin-ite** (cheff'), *n.* [named after the Russ. Gen. *Tscheffkin*.] a rare titanite silicate occurring in velvety black, massive form.

**tsé**, *n.* [S. Afr.] an African dipterous insect of the family *Tipidae* and genus *Glossina*, akin to the gadfly: one species is a carrier of nagana and another a carrier of sleeping sickness; also called *tsesefly*.  
**Tshi** (chwé or ché), *n.* [Tshi.] a group of Sudanic languages of the Gold Coast, Africa.  
**Tshi**, *a.* of Tshi or the speakers of any of these languages.  
**T-shirt** (tē'), *n.* [so named because T-shaped.] a collarless, cotton, pull-over shirt with very short sleeves.  
**T-square**, see under *T*.  
**tsuba**, *n.* [Japan.] the highly decorated guard of a Japanese sword.  
**Tsuba**, *n.* [Japan.] a genus of coniferous trees, the hemlocks, intermediate between *Picea*, the spruces, and *Abies*, the firs. The six species have pendulous branches, narrowly linear leaves, white underneath, and small brown cones.  
**tsung-tu** (dzoong-dú), *n.* formerly, a Chinese provincial governor; a viceroi.  
**Tu**, in chemistry, thulium.  
**Tuareg** (twá'), *n.* [from Arab. *tereq*, to give up.]



TSETSE  
1. insect; 2. mouth organs (greatly magnified)

1. a member of a group of Berber tribes of the western and central Sahara.  
 2. their Hamitic language.  
**tub-art**, *n.* same as *toari*.  
**tub-a-té-ra**, *n.* a lizard of the genus *Hatteria*.  
**tub**, *n.* [ME. *tubbe*; M.D. *tubbe*.]  
 1. a round, broad, open, wooden container, usually formed of staves and hoops fastened around a flat bottom.  
 2. any similarly large, open container of metal, stone, etc., as for washing.  
 3. the contents of a tub, or a tub and its contents.  
 4. a small cask holding about four gallons.  
 5. (a) a bucket or tram for carrying coal, ore, etc. in a mine; (b) the lining of a mining shaft.  
 6. a bathtub.  
 7. a bath in a tub. [Brit. Colloq.]  
 8. a slow-moving, clumsy ship or boat. [Colloq.]

**tub**, *v.t.* and *v.i.* tubbed, *pl.*, *pp.*; tubing, *ppr.*  
 1. to wash in a tub. [Colloq.]  
 2. to bathe (oneself). [Brit. Colloq.]

**tub-ba**, *n.*; *pl.* **tub-bas**, **tub-bae**, [L., a trumpet.]  
 1. in ancient Rome, a straight war trumpet.  
 2. a large brass-wind instrument of the saxhorn group.  
 3. a powerful reed organ stop of 8-foot pitch.

**tub-áge**, *n.* 1. formerly, the act of lining a gun with a cylindrical tube of wrought iron or steel to increase the power by decreasing the caliber.  
 2. the insertion of a tube into one of the passages of the body; intubation.  
**tub-ál**, *a.* relating to a tube, especially to a Fallopian or a Eustachian tube.  
**tub-ál**, *n.* a Fallopian tube.  
**Tub-á-láin'**, *n.* in the Bible, a worker in brass and iron; Gen. iv. 22.  
**tub-áte**, *a.* furnished with or having the shape of a tube; tubular.  
**tub-bing**, *n.* [verbal noun of *tub*.]  
 1. the materials from which tubs are made.  
 2. the act of one employed in making tubs.



TUBA

3. the metal or wooden lining of the shaft of a mine, usually cylindrical in form.  
 4. the act or process of bathing or of being bathed in a tub.

**tub-by**, *a.*; *comp.* tubbier; *superl.* tubbiest, 1. shaped like a tub.  
 2. short and fat.

3. having a dull, wooden sound.

**tube**, *n.* [Fr., from L. *tubus*, a pipe.]

1. a hollow cylinder or pipe of metal, glass, rubber, etc., usually long in proportion to its diameter, used for conveying fluids, etc.

2. an enclosed, hollow cylinder of thin, soft metal, fitted at one end with a screw cap and used for holding toothpaste, artist's paints, etc.

3. an instrument, part, organ, etc. resembling a tube; as, a bronchial tube.

4. an electron tube.

5. (a) an underground tunnel for an electric railroad; (b) [Colloq.] the electric railroad itself.

6. a telescope. [Archaic.]

7. in botany, the lower, united part of a gamopetalous corolla or a gamosepalous calyx.

8. in electricity, a tubular space bounded by lines of force or induction; also tube of force, tube of induction.

**bronchial tubes**; see under *bronchial*.

**capillary tubes**; see under *capillary*.

**electron tube**; see under *electron*.

**Eustachian tube**; see under *Eustachian*.

**Malpighian tube**; see under *Malpighian*.

**pneumatic tube**; a tube that uses compressed air for carrying packets, letters, etc. in a box fitted to the tube and containing a compartment for receiving whatever is to be carried.

**safety tube**; in anatomy, a small part of the upper termination of the Eustachian tube: it is partly open, thus allowing a recoil of air from the tympanum when the membrane of the drum is driven inward suddenly: pressure in the tympanic cavity is thus equalized from the pharynx.

**screen-grid tube**; a vacuum tube using a fine wire mesh grid or screen to reduce to a minimum the effective capacity between the electrodes.

**vacuum tube**; see following *vacuum*.

**tube**, *v.t.*; tubed, *pl.*, *pp.*; tubing, *ppr.* 1. to furnish with, place in, or pass through a tube or tubes.  
 2. to make tubular.

**tube cor-ál**, same as *tubipore*.

**tube foot**, a locomotive process or ambulacral sucker of an echinoderm.

**tube-form**, *a.* same as *tubiform*.

**tube-nósed** (nózd), *a.* having tubiform nostrils, as certain birds.

**tube pláte**, same as *tube sheet*.

**tub-ber**, *n.* [L., lit., a swelling or knob on plants.]

1. in botany, a fleshy, rounded part of a subterranean stem, as the potato or arrowroot: new plants develop from the buds, or eyes, that grow in the axils of the minute scale leaves of a tuber.  
 2. [T-] a genus of fungi including the truffles.

3. in anatomy, a tubercle.

**Tub-ber-á-cé-ae**, *n. pl.* [LL., from L. *tuber*, a tuber, and *-aceæ*.] a family of fungi analogous among the sporidiferous kind with the hypogaeal fungi among the sporiferous. All the genera, with a single exception, are strictly subterranean. The order includes the genus *Tuber*, the common truffles, and *Rhizopogon*, the white truffles.

**tub-ber-á-ceous**, *a.* pertaining or belonging to the order *Tuberaceæ*.

**tub-ber-cle** (-kl), *n.* [Fr., from L. *tuberculum*, double dim. of *tuber*, a swelling.]

1. a nodule or small prominence, especially a solid elevation of the skin larger in size than a papula.

2. in anatomy, a rough, rounded prominence on a bone.

3. any abnormal hard nodule; especially, the typical nodular lesion produced by the bacillus of tuberculosis, and consisting of a translucent mass, gray in color, made up of small spheric cells, which contain giant cells, and are surrounded by a layer of spindle-shaped connective tissue cells known as epithelioid cells.

4. in botany, a little knob or rough point on the fronds of some lichens; also, a small tuber or tuberlike root growth.

5. in the *Echinidae*, a small eminence of the

body wall which is immediately connected with the spines.

**Darwinian tubercle**; see under *Darwinian*.

**tub-ber-cle bá-cil-lus**, the bacillus causing tuberculosis.

**tub-ber-cled** (-kld), *a.* having tubercles; affected with tubercles; as, a tubercled lung.

**tub-ber-cū-lār**, *a.* [L. *tuberculum*, tubercle.]

1. shaped like a tubercle; having the form and appearance of a tubercle.

2. full of tubercles; tuberculate.

3. in medicine, affected with or having tuberculosis; tuberculous.

**tub-ber-cū-lār**, *n.* a tuberculous person.

**Tub-ber-cū-lār-á-cé-ae**, *n. pl.* [L. *tuberculum*, a tubercle, and *-aceæ*.] a large family of fungi, having the conidia borne laterally or terminally on hyphae. Growths of this class cause many plant diseases.

**tub-ber-cū-lār-í-zā-tion**, *n.* infection with tuberculosis.

**tub-ber-cū-lār-í-ze**, *v.t.*; tubercularized, *pl.*, *pp.*; tubercularizing, *ppr.* to infect with tuberculosis.

**tub-ber-cū-lāte**, *a.* [LL. *tuberculatus*, from L. *tuberculum*, a tubercle.]

1. tubercular.

2. tuberculated.

**tub-ber-cū-lā-ter**, *a.* characterized by, shaped like, or having a tubercle or tubercles.

**tub-ber-cū-lā-tion**, *n.* the development of tubercles.

**tub-ber-cū-lin**, *n.* [*tuberculum* and *-in*.] a sterile liquid preparation made from the growth products or extracts of a tubercle bacillus culture and injected into the skin as a test for the presence of tuberculosis.

**tub-ber-cū-line**, *n.* tuberculin.

**tub-ber-cū-lí-zā-tion**, *n.* the formation of tubercles; the condition of becoming tubercled.

**tub-ber-cū-lō-**, [from L. *tuberculum*.] a combining form meaning (a) *tuberculous*; (b) *tubercle bacillus*; (c) *tuberculosis*: also, before a vowel, *tubercul-*.

**tub-ber-cū-lō-cí-din**, *n.* an albumose derived from tuberculin by treating it with platinum chloride. It is used like tuberculin but is said to be free from the impurities of the latter.

**tub-ber-cū-loid**, *a.* [*tuberculum* and *-oid*.] like a tubercle.

**tub-ber-cū-lōse**, *a.* tubercular.

**tub-ber-cū-lōsed** (-lōst), *a.* having tuberculosis.

**tub-ber-cū-lō-sis**, *n.* [L. *tuberculum*, tubercle.] an infectious disease caused by the tubercle bacillus and characterized by the formation of tubercles in various tissues of the body; especially, tuberculosis of the lungs; pulmonary phthisis; consumption. To a lesser extent the spleen, kidneys, lymph glands, liver, intestines, and brain may become involved. The disease is attended by symptoms due to the destruction it produces and varying with the location of the infection. When not strictly localized, the general symptoms of septic infection are present, such as hectic fever, increasing emaciation, and night-sweats.

**tub-ber-cū-lous**, *a.* 1. tubercular.

2. having tuberculosis.

**tub-ber-cū-lum**, *n.* [L., tubercle.] a tubercle.

**tub-ber-í-er-ous**, *a.* [L. *tuber*, *tuberis*, a tuber, and *-ferous*.] producing or bearing tubers.

**tub-ber-in**, *n.* in physiological chemistry, a proteide typical of the potato tuber.

**tub-ber-ón**, *n.* a shark. [Obs.]

**tub-ber-óse**, *n.* [an alteration of LL. *tuberosa*, from L. *tuberosus*, knobby.] a plant with a tuberous root, short, grasslike leaves, and a liliaceous flower, the *Polianthes tuberosa*.

**tub-ber-óse**, *a.* tuberous.

**tub-ber-ós-i-ty**, *n.*; *pl.* **tub-ber-ós-i-ties**, 1. the state or quality of being tuberous.

2. a swelling or prominence; specifically, in anatomy, a projection or elevation on a bone, having a rough uneven surface, to which muscles and ligaments are attached.

**tub-ber-ous**, *a.* [L. *tuberosus*.]

1. covered with knobby or wartlike lumps or prominences; knobbed.

2. in botany, consisting of or containing tubers; also, resembling a tuber.

**tub-ber-ous-ness**, *n.* the quality of being tuberous; tuberosity.



TUBEROSE  
(*Polianthes tuberosa*)

**tse**, bull, brute, túrn, up; **crý**, myth; **cat**, machine, ace, church, chord; **gem**, anger, (Fr.) **boñ**, aš; **this**, thin; **azure**